

Date: Fri, 1 Apr 94 13:29:04 PST  
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>  
Errors-To: Info-Hams-Errors@UCSD.Edu  
Reply-To: Info-Hams@UCSD.Edu  
Precedence: Bulk  
Subject: Info-Hams Digest V94 #361  
To: Info-Hams

Info-Hams Digest                      Fri, 1 Apr 94                      Volume 94 : Issue 361

Today's Topics:

                    [News] Electricity, Leukemia Studied  
                    Daily Summary of Solar Geophysical Activity for 30 March  
                    HELP! The FCC will not is  
How phasing SSB Exciters Work (Was: RF and AF speech processors) (2 msgs)  
                    Icom 375 Wanted  
                    Kill that intermod!  
                    RF and AF speech processors. Was: FT-990 vs TS-850  
                    Was obscenity on ham bands

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>  
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: Thu, 31 Mar 1994 20:00:05 GMT  
From: news.Hawaii.Edu!uhunix3.uhcc.Hawaii.Edu!jherman@ames.arpa  
Subject: [News] Electricity, Leukemia Studied  
To: info-hams@ucsd.edu

Thought this might be of interest to everyone. Note that the phrase  
'statistically significant' was used also by the EPA and FCC in their  
joint study concerning leukemia and high RF fields conducted here in  
Honolulu in regard to three bcst xmtrs located in a residential  
neighborhood.

Jeff NH6IL

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USA TODAY Update

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!!BEGIN!! (1.0) S.T.D. Solar Geophysical Data Broadcast for DAY 089, 03/30/94
10.7 FLUX=086.3  90-AVG=102          SSN=048          BKI=1123 3333  BAI=011
BGND-XRAY=A5.5    FLU1=1.3E+06  FLU10=1.2E+04  PKI=1114 3333  PAI=012
    BOU-DEV=007,008,011,037,034,020,026,030  DEV-AVG=021 NT    SWF=00:000
    XRAY-MAX= C1.7  @ 0813UT    XRAY-MIN= A3.0  @ 0705UT    XRAY-AVG= A9.7
NEUTN-MAX= +001%  @ 2310UT    NEUTN-MIN= -003%  @ 1310UT    NEUTN-AVG= -0.3%
    PCA-MAX= +0.2DB @ 2215UT    PCA-MIN= -0.3DB @ 0605UT    PCA-AVG= +0.0DB
BOUTF-MAX=55341NT @ 0820UT    BOUTF-MIN=55305NT @ 1901UT    BOUTF-AVG=55330NT

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GOES7-MAX=P:+000NT@ 0000UT GOES7-MIN=N:+000NT@ 0000UT G7-AVG=+073,+000,+000  
GOES6-MAX=P:+120NT@ 1819UT GOES6-MIN=N:-077NT@ 0658UT G6-AVG=+091,+020,-036  
FLUXFCST=STD:085,085,085;SESC:085,085,085 BAI/PAI-FCST=010,010,010/010,010,010  
KFCST=2104 5011 2104 5011 27DAY-AP=027,004 27DAY-KP=3456 4122 1112 1111  
WARNINGS=  
ALERTS=  
!!END-DATA!!

NOTE: The Effective Sunspot Number for 29 MAR 94 was 47.5.  
The Full Kp Indices for 29 MAR 94 are: 2+ 1o 2- 2- 2- 1+ 2- 2o  
The 3-Hr Ap Indices for 29 MAR 94 are: 10 4 7 7 5 7 8  
Greater than 2 MeV Electron Fluence for 30 MAR is: 3.0E+07

#### SYNOPSIS OF ACTIVITY

-----  
Solar activity was low due to an optically uncorrelated  
C1.7 flare at 30/0813Z. Region 7695 (S15W23) is decaying slowly.  
New Region 7698 (S16E02) emerged on the disk.

Solar activity forecast: solar activity is expected to be  
very low, but there is an outside chance of an isolated C flare.

The geomagnetic field was quiet until 30/0900Z and mostly  
unsettled afterwards.

Geophysical activity forecast: the geomagnetic field is  
expected to be quiet to unsettled.

Event probabilities 31 mar-02 apr

Class M	01/01/01
Class X	01/01/01
Proton	01/01/01
PCAF	Green

Geomagnetic activity probabilities 31 mar-02 apr

##### A. Middle Latitudes

Active	15/15/15
Minor Storm	10/10/10
Major-Severe Storm	05/05/05

##### B. High Latitudes

Active	15/15/15
Minor Storm	10/10/10
Major-Severe Storm	05/05/05

HF propagation conditions were normal over all regions. Normal conditions will persist over at least the next 3 days. Fair propagation will exist for the high and polar latitudes, good propagation over the middle latitudes, and good to very good propagation for the low and equatorial latitudes. Occasional night-sector minor signal degradation may affect some transauroral paths.

# COPIES OF JOINT USAF/NOAA SESC SOLAR GEOPHYSICAL REPORTS

## REGIONS WITH SUNSPOTS. LOCATIONS VALID AT 30/2400Z MARCH

NMBR	LOCATION	LO	AREA	Z	LL	NN	MAG	TYPE
7695	S15W23	057	0010	BX0	07	009	BETA	
7696	S16W62	096	0010	BX0	02	003	BETA	
7698	S16E02	032	0020	CRO	03	006	BETA	
7694	N11W37	071					PLAGE	
7697	N12W08	042					PLAGE	

REGIONS DUE TO RETURN 31 MARCH TO 02 APRIL

NMBR LAT LO

NONE

## LISTING OF SOLAR ENERGETIC EVENTS FOR 30 MARCH, 1994

BEGIN	MAX	END	RGN	LOC	XRAY	OP	245MHZ	10CM	SWEEP
NONE									

## POSSIBLE CORONAL MASS EJECTION EVENTS FOR 30 MARCH, 1994

BEGIN	MAX	END	LOCATION	TYPE	SIZE	DUR	II	IV
30/B1104		B1255	S21W53	DSF				

## INFERRED CORONAL HOLES. LOCATIONS VALID AT 30/2400Z

ISOLATED HOLES AND POLAR EXTENSIONS									
	EAST	SOUTH	WEST	NORTH	CAR	TYPE	POL	AREA	OBSN
72	N25W42	N12W59	N15W62	N28W48	082	ISO	POS	003	10830A
73	S50E86	S52E36	S31W09	S21E01	352	EXT	NEG	044	10830A

## SUMMARY OF FLARE EVENTS FOR THE PREVIOUS UTC DAY

Date	Begin	Max	End	Xray	Op	Region	Locn	2695 MHz	8800 MHz	15.4 GHz
29 Mar:	0612	0623	0630	B3.1	SF	7697	N10E19			
	0905	0910	0915	B2.8	SF	7696	S18W40			
	1539	1550	1612	B6.1	SF	7697	N10E13			

#### REGION FLARE STATISTICS FOR THE PREVIOUS UTC DAY

	C	M	X	S	1	2	3	4	Total	(%)
Region 7696:	0	0	0	1	0	0	0	0	001	(33.3)
Region 7697:	0	0	0	2	0	0	0	0	002	(66.7)
Uncorrelated:	0	0	0	0	0	0	0	0	000	( 0.0)

Total Events: 003 optical and x-ray.

#### EVENTS WITH SWEEPS AND/OR OPTICAL PHENOMENA FOR THE LAST UTC DAY

Date	Begin	Max	End	Xray	Op	Region	Locn	Sweeps/Optical Observations
NO EVENTS OBSERVED.								

#### NOTES:

All times are in Universal Time (UT). Characters preceding begin, max, and end times are defined as: B = Before, U = Uncertain, A = After. All times associated with x-ray flares (ex. flares which produce associated x-ray bursts) refer to the begin, max, and end times of the x-rays. Flares which are not associated with x-ray signatures use the optical observations to determine the begin, max, and end times.

Acronyms used to identify sweeps and optical phenomena include:

II	= Type II Sweep Frequency Event
III	= Type III Sweep
IV	= Type IV Sweep
V	= Type V Sweep
Continuum	= Continuum Radio Event
Loop	= Loop Prominence System,
Spray	= Limb Spray,
Surge	= Bright Limb Surge,
EPL	= Eruptive Prominence on the Limb.

\*\* End of Daily Report \*\*

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Date: Thu, 31 Mar 94 09:15:00 -0800  
From: netcomsv!netcomsv!nitelog!mario.campos@decwrl.dec.com  
Subject: HELP! The FCC will not is  
To: info-hams@ucsd.edu

JWH>It will be 90 days on April 6th since the FCC has had my application. This  
JWH>my first ham license, I have \_not\_ had a ham license canceled by the FCC.

Call your US Congressman's office - relate your saga to the "gopher" in  
his/her office. You should be able to get an answer within a short time!

Message written at 9:03am, on Thursday, March 31, 1994.

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Date: Thu, 31 Mar 1994 20:20:58 GMT  
From: ihnp4.ucsd.edu!swrinde!cs.utexas.edu!math.ohio-state.edu!magnus.acs.ohio-  
state.edu!csn!col.hp.com!srngenprp!alanb@network.ucsd.edu  
Subject: How phasing SSB Exciters Work (Was: RF and AF speech processors)  
To: info-hams@ucsd.edu

John Welch (jjw@seastar.org) wrote:

: So, the audio phase shift is the only 'interesting' part...  
: How, pray tell, can one having only the usual ham test gear (scope,  
: probably, dmm, maybe power supply) make the RF phase shift be 90  
: degrees and the same amplitude at, say 12MHz?

Easy: Just feed in an audio tone to the mic input and adjust the  
RF amplitude and phase until the unwanted sideband disappears.

: One other interesting thing re: phasing vs filtering: you'll  
: need \*some\* additional filtering to do a transmitter anyway (for SSB  
: at least).

Not really, unless you want to do RF clipping. And in that case, you  
still have saved one of the two required crystal filters.

: This filter will cost you \$\$, and if you already have to  
: spend the \$\$ why not use it for the receiver too? That rather neatly  
: explains why darned few commercial ham rigs use phasing any more.

Or turn it the other way around: Since the receiver portion of a  
transceiver already has a crystal filter, why not use it for the

transmitter as well? I think that's the reason you don't find phasing-type SSB generators in commercial transceivers.

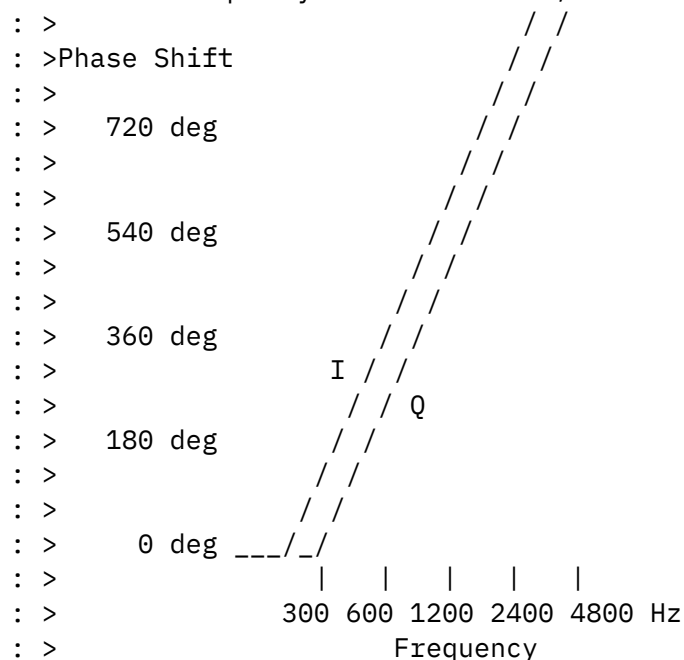
AL N1AL

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Date: Thu, 31 Mar 1994 20:51:38 GMT  
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!howland.reston.ans.net!math.ohio-state.edu!magnus.acs.ohio-state.edu!csn!col.hp.com!srngenprp!alanb@network.ucsd.edu  
Subject: How phasing SSB Exciters Work (Was: RF and AF speech processors)  
To: info-hams@ucsd.edu

Gary Coffman (gary@ke4zv.atl.ga.us) wrote:

: In article <CnG3Jt.Htw@srngenprp.sr.hp.com> alanb@sr.hp.com (Alan Bloom) writes:

: >The audio phase shift network is the interesting (read difficult) part  
: >of the system. It must maintain a 90 degree phase difference and  
: >excellent amplitude matching between the two outputs over something like  
: >a 10:1 frequency range (300 Hz - 3000 Hz). It generally does that by  
: >causing each of the two outputs to have a constantly-rising phase shift  
: >versus frequency characteristic, like thus:



: Now this chart illustrates the problem I've been talking about. As  
: we can see, the difference in delay with frequency is quite marked.  
: Sure the phase delay increases \*smoothly\* with frequency delta, but  
: the magnitude of the error rapidly climbs with increasing frequency  
: delta. This is our old friend click-boom. ...

Other people besides Gary may be confused by this, so I'll post an explanation.

The graph above plots phase, not delay. A constant delay results in a constantly-rising phase plot. For example, a 1 millisecond delay is 36 degrees at 100 Hz, 360 degrees at 1000 Hz, 3600 degrees at 10,000 Hz, etc.

Constant delay does not cause the "click-boom" that Gary mentioned. Think about it: You could record a voice on a tape recorder and play it back DAYS later without any "click boom." It's only when the delay is different at different frequencies (that is, the phase versus frequency plot is not a straight line) that there is a potential problem.

While the plot above looks like a straight line, it really isn't because of the logarithmic x-axis. However, as the chart that Tom Bruhns posted of a typical phase-shift network shows, it really isn't too bad. His chart shows that between 400 and 2786 Hz, the maximum phase error from a straight line varies smoothly between +17.2 to -20.9 degrees, which is far better than you would get with a typical transceiver-type crystal filter.

I expect most of the delay variation would come from the audio filter (that comes before the phase-shift network). Such a filter can be much flatter than a typical crystal filter for the three reasons I mentioned in a previous posting: (1) Doesn't need as sharp a cutoff as a receiver-type filter, (2) Can use a filter type with inherently flatter delay (non-Chebyshev), and (3) Pole Q and placement are much easier to control at audio frequencies than at RF.

AL N1AL

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Date: 31 Mar 1994 17:02:06 -0500  
From: ihnp4.ucsd.edu!galaxy.ucr.edu!library.ucla.edu!csulb.edu!nic-nac.CSU.net!  
usc!howland.reston.ans.net!europa.eng.gtefsd.com!news.ans.net!hp81.prod.aol.net!  
search01.news.aol.com!@network  
Subject: Icom 375 Wanted  
To: info-hams@ucsd.edu

I am interested in acquiring an Icom 375, 222 MHz all-mode rig.

If anyone is interested in selling one, please E-Mail me at  
PerryB1237@AOL.COM.

Thanks,



Perry

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Date: Thu, 31 Mar 1994 20:08:29 GMT  
From: ihnp4.ucsd.edu!swrinde!cs.utexas.edu!math.ohio-state.edu!magnus.acs.ohio-state.edu!csn!col.hp.com!srgenprp!alanb@network.ucsd.edu  
Subject: Kill that intermod!  
To: info-hams@ucsd.edu

Ken A. Nishimura (kennish@kabuki.EECS.Berkeley.EDU) wrote:

: In article <1994Mar30.183318.9204@arrl.org>,  
: Ed Hare (KA1CV) <ehare@arrl.org> wrote:  
: >The ARRL Laboratory wants to start testing the out-of-band intermod  
: >performance of VHF FM rigs and publishing the results in our  
: >QST Product Reviews. We are already measuring in-band third-order  
: >IMD, so the test methods are established. What I would like is  
: >some reports on specific out-of-band IMD problems that are being  
: >experienced in metro areas, frequencies, locations, etc. Please send  
: >the reports to ehare@arrl.org.

: Find the 3rd order and 5th order (if you wish) intercept  
: point, and then publish the frequency response of the front  
: end RF filter, and you're done. Given those two pieces of  
: information, you will have a very good idea of what kind of  
: intermod problem you get in that receiver.

I agree.

The only problem is that it might be hard to get at the output of the radio's front-end filter for testing. Another method to obtain the same information would be to plot the 3rd-order intercept point as a function of tone spacing. Plot it with tone spacing (frequency) on a logarithmic axis so you can get in-band and out-of-band info on the same chart. That would actually be more useful information than Ken's method.

: >Some of the "IMD" problems being reported are probably receiver  
: >image problems, so we are also going to measure and report the  
: >image rejection. If anyone has reports of image-response interference,  
: >I would like to know about that, too.

: Barring the use of image suppression mixers (which I haven't  
: seen yet on VHF+ ham rigs), the front end response  
: is all you need, plus the tuning function, if any.

I'm not sure what the block diagrams of these radios look like, but if they are using a low-frequency first IF (10.7 or 21.4 MHz) without

image-reject mixers, then the image rejection will be 0 dB. How do they get around the problem? Up-convert to a high first IF?

: There are WAY TOO MANY possible combinations of frequencies  
: that will cause intermod under the right conditions. I think  
: what people want is a figure of merit that makes comparison  
: easy. 3rd order intercept point is about the best FOM  
: there is.

Agreed.

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Date: Thu, 31 Mar 1994 19:57:50 GMT  
From: ihnp4.ucsd.edu!usc!math.ohio-state.edu!magnus.acs.ohio-state.edu!csn!  
col.hp.com!srgeprp!alanb@network.ucsd.edu  
Subject: RF and AF speech processors. Was: FT-990 vs TS-850  
To: info-hams@ucsd.edu

Kok Chen (kchen@apple.com) wrote:  
: zlau@arrl.org (Zack Lau (KH6CP)) writes:

: >If you clip an ideal DSB waveform (1 kHz modulation), aren't there  
: >two tones spaced 1 kHz apart that could generate IMD products at  
: >1.5 kHz and 1.5 kHz (receiver output)? What if you had a significant  
: >amount of carrier leakthrough that was cleaned up by the crystal  
: >filter? Couldn't this give you extra tones at 1, 1.5, 2, and 2.5  
: >kHz (at the receiver)?

: Wait... I am completely confused by Zack's arguments.

: A DSB signal that has a 1 kc modulation consists of two "carriers"  
: spaced 2 kc apart, not 1 kc, no? (Imagine AM with 1 kc modulation.  
: Now take away the carrier.)

Right. If you assume Zack meant .5 kHz modulation, then it makes sense:  
The two sidebands are carrier + and - .5 kHz and the third-order  
IMD products are carrier + and - 1.5 kHz. So the recovered audio has  
a third harmonic, but no second harmonic. So symmetrical clipping of  
a DSB waveform is the same as symmetrical clipping of the baseband  
audio in that it generates odd-order products, but not even-order.

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Date: Thu, 31 Mar 1994 19:28:05 GMT  
From: ihnp4.ucsd.edu!swrinde!emory!news-feed-2.peachnet.edu!concert!  
unccsun.uncc.edu!usenet@network.ucsd.edu  
Subject: Was obscenity on ham bands  
To: info-hams@ucsd.edu

In article KDF@netcom.com, slay@netcom.com (Sandy Lynch) writes:

> PS: There are plenty of Extra Class licensees who are guilty of the  
> transgressions you mention. You should NOT infer that I am saying  
> anything about "no coders". I've lived in Japan for many, many  
> years where 92% of all licensed amateur stations belong to "no coders".  
> They are pretty good - but, there are the bad apples in every barrel.  
>

The 92% figure made me curious. Does anyone know the percentage  
breakdown for the various classes world wide and in the US?

Jerre

-----  
Date: 31 Mar 1994 20:25:32 GMT  
From: ihnp4.ucsd.edu!usc!math.ohio-state.edu!magnus.acs.ohio-state.edu!csn!  
col.hp.com!news.dtc.hp.com!hpscit.sc.hp.com!rkarlqu@network.ucsd.edu  
To: info-hams@ucsd.edu

References <1994Mar29.160241.20722@ke4zv.atl.ga.us>,  
<CnG3Jt.Htw@srngenprp.sr.hp.com>, <CnI0t1.DJ@seastar.org>  
Subject : Re: How phasing SSB Exciters Work (Was: RF and AF speech processors)

In article <CnI0t1.DJ@seastar.org>, John Welch <jjw@seastar.org> wrote:

> My dual-trace scope is not perfectly calibrated, so that's  
> out. Generating 48MHz and using flip-flops to get 12MHz in quadrature  
> doesn't work well in reality (theory is great, but unless your 48MHz  
> signal is \*exactly\* 50% duty cycle it has a \*strong\* component at just  
> under half of 48MHz, usually near 22MHz. Flip-flops, like all

No, you get a spur at exactly 24 MHz, the second harmonic. If you  
drive the mixer differentially from Q and Qbar, I believe this  
second harmonic will cancel out for all practical purposes.  
Many popular mixers (SBL-1 etc) have floating LO windings that make  
this easy to do.

Also, the propagation delay doesn't have to be zero, it only has to  
be identical between the I and Q outputs, which if they are flip  
flops on the same chip will be very close (easily under a nanosecond

for FACT logic, 100 psec. for ECLIPSE logic.)

The tough part isn't the audio 90 degree shift or the RF 90 degree shift, it's getting amplitude and phase matched mixers.

Rick Karlquist N6RK  
rkarlqu@scd.hp.com

-----  
Date: 31 Mar 1994 21:55:54 GMT  
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!vixen.cso.uiuc.edu!  
newsrelay.iastate.edu!newsxfer.itd.umich.edu!ncar!csn!col.hp.com!fc.hp.com!  
news.lvld.hp.com!scott@network.ucsd.edu  
To: info-hams@ucsd.edu

References <2n73kp\$06i@vixen.cso.uiuc.edu>, <2nadh\$1a6@hplvec.lvld.hp.com>,  
<CnIon5.K1q@news.Hawaii.Edu>at  
Subject : Re: Obscenity on ham bands

Jeffrey Herman (jherman@uhunix3.uhcc.Hawaii.Edu) wrote:

I wrote:

: >(PS - Does anybody in Hawaii ever work 75 phone? I'd love to get my  
: >last state on the band, but I've never even heard a Hawaiiin station, let  
: >alone been able to contact one!)

: Scott: We don't have phones out here - the sharks kept eating the phone  
: lines between here and you folks. We only have CW.

Good grief. Thanks for your help.

: You'll get the natives angry if you misspell 'Hawaiian' - when they get  
: mad they start eating white people... ;)

Sigh. As soon as I posted this one and reread it, I just knew someone  
would be compelled to correct the spelling. Thanks Jeff. I'm very  
sorry that my fingers were lagging somewhat behind my brain. I'll try  
not to let that happen again.

BTW, I seriously doubt that the "natives" much care about the anglicized  
spelling of one of their words.

BTW^2, I'm sure the original poster is reading Jeff's remarks with much  
amusement.

Scott Turner N0VRF scott@hplsla.LVLD.HP.COM

-----  
Date: Thu, 31 Mar 1994 16:04:21 GMT  
From: ihnp4.ucsd.edu!swrinde!emory!rsiatl!ke4zv!gary@network.ucsd.edu  
To: info-hams@ucsd.edu

References <2n7e2a\$7mp@paperboy.ids.net>, <1994Mar29.124149.4266@arrl.org>,  
<gregCnFxoC.JIF@netcom.com>  
Reply-To : gary@ke4zv.atl.ga.us (Gary Coffman)  
Subject : Re: But Seriously

In article <gregCnFxoC.JIF@netcom.com> greg@netcom.com (Greg Bullough) writes:  
>The subject is 'what kind of award makes sense for no-code techs?'  
>At risk of sounding a bit patronizing, I'd look really hard at the  
>Boy Scout merit-badge and ranking model.

It *is* a bit patronizing to think that adults require merit badges,  
but such is life. Any voluntary concept that encourages people to  
experiment and try new things can't be all bad.

>So, we can start by listing some things that are worth-while for the  
>new ham to try, by which s/he'll learn. And some categories to put  
>those things in (e.g. Technical, Operational, Experimental, Organizational).  
>

>And yes, I think a couple of repeater contacts ought to be worth something,  
>but not in and of itself. Here's a partial list of things that might  
>score points toward the, Personal Frontiers award:  
>

- > 1. Technical
  - > a. Complete a home-brew antenna project
  - > b. Install a mobile rig in your car
  - > c. Find a cable-TV leak

Good, good, good.

- > d. Build a code-practice oscillator

Not relevant to the code test free licensee. Better would be some  
station accessory that's really useful to the code test free licensee  
such as a Baycom kit.

- > e. Build an HF receiver kit

Not really relevant to the code test free licensee. Better would be a UHF  
transmitter or receiver project.

- > 2. Operational
  - > a. Complete a VHF or UHF simplex QSO of more than

> <pick a figure> miles

Smacks of Dxing, but Ok.

> b. Complete a VHF or UHF QSO on SSB or CW

Or ATV, packet, satellite, etc.

> c. Participate in a fox-hunt

> d. Check into a VHF or UHF traffic net

> e. Handle a piece of traffic from a PBBS

Good, good, good.

> f. Sign up for an upgrade class

> g. Get up to 5 words per minute.

Neither relevant to the code test free licensee.

> 3. Organizational

> a. Attend a meeting of a local ham club

> b. Provide amateur radio communications at a public event,  
> under sponsorship of a local amateur radio group

> c. Participate in RACES or ARES activities during  
> an emergency

> d. Attend a ham-fest...

All good.

>I'm sure there are more that can be added. The idea is to figure out the things  
>that new hams can be doing to grow and develop in the hobby/service and  
>both suggest them and recognize an effort towards giving them a try. The list  
>of items has to be big enough so that the issue of 'but we haven't had a  
>natural disaster this year' doesn't really hamper getting a certificate.

>

>I'd limit the award to the first couple of years after licensing, and  
>also to Novice and Technician classes. The idea is to get NEW hams expanding  
>their horizons, trying new things, and into the various organizations.

Wouldn't hurt to get some of the old duffers to try a few new things too.  
Many have fallen into a rut. I wouldn't limit this to just new hams. Make  
it something \*all\* hams can do together. But lay off the Morse and "upgrade"  
stuff. The Tech license isn't a way station, it's an end to itself intended  
to fill the VHF/UHF bands with activity. Let's concentrate on that and let  
those who want HF follow the Novice track to General. There are already  
plenty of HF awards.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		uunet!rsiatl!ke4zv!gary
534 Shannon Way		Guaranteed!		emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244				

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End of Info-Hams Digest V94 #361

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